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acting on the tooth assembly; and

f) an excavating tooth configured for attachment to the adapter and having a hollow mounting end defining a cavity configured to mate with the adapter, said hollow mounting end including an inner tapered surface adapted to mate with said outer tapered surface of the adapter, said inner tapered surface configured with a substantially horizontal rearward transmitting section adapted to mate with said rearward land section of the adapter, and a substantially horizontal forward transmitting section adapted to mate with said forward land section of the adapter, said rearward and forward transmitting sections each having a substantially similar and generally semicircular shape complementary to the semicircular shape of the rearward and forward land sections on said adapter, with each semicircular shape on said transmitting sections of said tooth including a vertical wall configured to mate with the substantially vertical [walls] wall on the rearward and forward land sections of said adapter to facilitate transmission of the lateral forces from the excavating tooth to the adapter.

Please cancel Claim 3.

Please amend Claim 9 as follows:

B2 (Twice Amended) An excavating tooth assembly comprising:


an adapter having an outer tapered surface with a substantially horizontal rearward land

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section protruding outwardly therefrom and a substantially horizontal forward land section defined as a recess therein, said rearward and forward land sections each having a substantially similar and generally semicircular shape opening to a forward end of said adapter, with each semicircular shape including a generally vertical wall diverging at least partially from a plane normal to the longitudinal centerline of the adapter thereby facilitating transmission of lateral forces acting on said tooth assembly; and

 an excavating tooth attached to the adapter and having a hollow mounting end defining a cavity configured to mate with the adapter, said hollow mounting end including an inner tapered surface adapted to mate with said outer tapered of the adapter, said inner tapered surface having a substantially horizontal rearward transmitting section defining a recess adapted to mate with said rearward land section of the adapter, and a substantially horizontal forward transmitting section protruding therefrom for mating with said forward land section of the adapter, said rearward and forward transmitting sections each having a substantially similar and generally semicircular shape opening to the hollow mounting end of said tooth and which are complementary to the semicircular shape of the rearward and forward horizontal land sections on said adapter, with each semicircular shape of the transmitting sections on said tooth including a vertical wall diverging to mate with the [corresponding] vertical walls of the rearward and forward land sections on the adapter to facilitate transmission of lateral forces from the excavating tooth to the adapter.

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Please cancel Claim 10.

Please amend Claim 14 as follows:

14. (Twice Amended) An excavating tooth assembly comprising:

an adapter having an outer tapered surface configured with a substantially horizontal land section through which a bore extends, with said bore defining a first generally vertical axis, and wherein said horizontal land section has a generally semicircular shape opening to a forward end of the adapter and includes a generally vertical wall extending at least partially about and to opposite lateral sides of said vertical axis;

an excavating tooth having a cutting end and a hollow mounting end defining a cavity configured to mate with the adapter, said hollow mounting end including an inner tapered surface adapted to mate with said outer tapered surface of the adapter, said inner tapered surface being configured with a substantially horizontal transmitting section through which a hole extends to act in conjunction with said bore of the adapter, with the hole in said tooth defining a second generally vertical axis, and with said transmitting section being configured to mate with the land section of the adapter in abutting relationship to facilitate transmission of vertical forces from the excavating tooth to the adapter, with said horizontal transmitting section on said tooth having a generally semicircular shape at least partially surrounding second vertical axis and a generally vertical wall extending thereabout, the generally vertical wall on the horizontal transmitting

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section of said tooth combining with the generally vertical wall on the adapter to facilitate transference of lateral forces acting on said tooth to said adapter;

a fastener extending through said bore and said hole for securing said excavating tooth to said adapter.

Please amend Claim 15 as follows:


15. The tooth assembly of Claim 14 wherein [said land section comprises a] the vertical [wall diverging] walls of said horizontal land section and said horizontal transmitting section diverge at least partially from a plane normal to a longitudinal centerline of said adapter and said tooth, respectively [and said transmission section further comprises a corresponding vertical wall in abutting relationship therewith to facilitate transmission of lateral forces from the excavating tooth to the adapter].

Please cancel Claim 16.

Please amend Claim 23 as follows:

23. (Twice Amended) An excavating tooth assembly comprising:
an adapter including a nose portion defining a longitudinal axis and having an outer tapered surface configured with a substantially horizontal land section protruding outwardly

therefrom and through which a bore extends, said bore defining a generally vertical axis, with said
land section having a generally arcuate vertical wall diverging at least partially from a plane
extending generally normal to [a] said longitudinal [centerline] axis of the nose portion of said
adapter, with said vertical wall extending at least partially about and to opposite lateral sides of
said vertical axis;

 an excavating tooth having a cutting end and a hollow mounting end defining a cavity
configured to permit said tooth to be positioned in mating relationship with the adapter, said
hollow mounting end including an inner tapered surface adapted to mate with said outer tapered
surface of the adapter, said inner tapered surface being configured with a recess defining a
substantially horizontal transmitting section through which a hole extends to act in conjunction
with said bore defined by the adapter, said transmitting section being configured to mate with the
land section of the adapter in abutting relationship to facilitate transmission of vertical forces from
the excavating tooth to the adapter, and [having] wherein said horizontal transmitting section on
said tooth further includes a generally vertical wall [corresponding] complementary to and which
extends in a fore-and-aft direction and abuts with the vertical wall of the land section on said
adapter to facilitate transmission of lateral forces from the excavating tooth to the adapter; and

a fastener arranged within said bore defined by said adapter and said hole defined by said
tooth for securing said excavating tooth to said adapter.

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Please amend Claim 26 as follows:

26. (Twice Amended) The tooth assembly of claim 23 further comprising a substantially horizontal forward land section formed in the outer tapered surface of the adapter forwardly of said bore, and a substantially horizontal forward transmitting section formed in the inner tapered surface of the excavating tooth forwardly of said hole, said forward land section and forward transmitting section being adapted to mate with each other in abutting relationship to further facilitate transmission of the vertical forces from the excavating tooth to the adapter.

Please amend Claim 28 as follows:

28. (Twice Amended) The tooth assembly of claim 23 further comprising a pair of opposed, substantially horizontal forward land sections formed in corresponding upper and lower outer tapered surfaces of the adapter forwardly of said bore, and further comprising a pair of opposed, substantially horizontal forward transmitting sections formed in corresponding upper and lower inner tapered surfaces of the excavating tooth forwardly of said hole defined by said tooth, said forward land sections and forward transmitting sections being adapted to mate with each other in abutting relationship to further facilitate transmission of the vertical forces from the excavating tooth to the adapter.

Please amend Claim 29 as follows:

29. (Twice Amended) An assembly for releasably attaching an excavating tooth to an excavating implement, comprising:

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an adapter having a base portion attachable to the excavating implement and a nose portion extending forwardly from the base portion, said nose portion having laterally spaced sides and converging upper and lower surfaces terminating at a forward end, said adapter defining an elongated aperture open at opposite ends and defining a generally vertical axis, and with the upper and lower surfaces of said adapter defining, in combination, at least three generally parallel stabilizing support surfaces, each stabilizing support surface opening to the forward end of the adapter, with each stabilizing support surface being at least partially surrounded by a generally vertical [stabilizing surface] wall extending normal to and between a stabilizing support surface and the respective upper and lower surfaces of the adapter, with each stabilizing support surface having a lateral width less than the spacing between the sides of the nose portion of the adapter, and wherein the generally vertical wall of each stabilizing support surface extends at least partially in a fore-and-aft direction and on opposite lateral sides of said vertical axis;

said excavating tooth defining a blind cavity configured to snugly fit endwise about the nose portion of the adapter, with the blind cavity defined by said tooth having upper and lower surfaces that complement the upper and lower surfaces of said nose portion of the adapter and include structure for abutting and cooperating with the three stabilizing support surfaces on the

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adapter, said structure including generally vertical wall structure which, when said tooth and adapter are arranged in operable combination relative to each other, abuts with [and wherein] the generally vertical [stabilizing surface] wall at least partially surrounding each stabilizing support surface of the adapter [being adapted to abut in a mating relationship with said structure on said tooth] to transfer side load forces imparted to the tooth toward a centerline of the adapter, said tooth further defining a pair of axially aligned openings that open to the cavity of the tooth and operate in conjunction with the elongated aperture defined by the adapter; and

pin structure extendable through the openings in the tooth and through the aperture in said adapter to releasably hold the tooth [to] and the adapter in operable combination relative to each other.

Please amend Claim 30 as follows:

30. (Twice Amended) An assembly for attaching an earth engaging tooth to a ground engaging implement, comprising:

a support having a base attachable to the implement and a nose extending forwardly from the base, said nose having laterally spaced sides and converging upper and lower surfaces terminating at a forward end, said support defining an elongated aperture open at opposite ends, said aperture defining a generally vertical axis, and with the upper and lower surfaces defining, in combination, at least three generally parallel stabilizing support surfaces, with each stabilizing

support surface opening to the forward end of the support, and wherein each stabilizing support surface extends generally horizontal and includes a wall [is] at least partially [surrounded by a stabilizing surface extending generally normal to and] extending in a fore-and-aft direction to opposite lateral sides of said vertical axis and between a respective stabilizing support surface and the respective upper or lower surfaces of the support;

said tooth having a blind cavity including upper and lower surfaces that complement the upper and lower surfaces of said nose of the support, with said upper and lower surfaces of said blind cavity including structure for abutting and cooperating with the three stabilizing support surfaces on the support, said structure including generally vertical and at least partially fore-and-aft extending wall structure which, when said tooth and support are arranged in operable combination relative to each other, abuts with [and wherein] the [stabilizing surface at least partially surrounding each support surface on the support being adapted to abut in mating relationship with said structure] walls of the stabilizing support surfaces on said upper and lower surfaces of the cavity defined by said tooth to facilitate transference of lateral forces imparted to said tooth during an excavating operation to said support, said tooth further defining a pair of axially aligned holes opening to the cavity in the tooth and which act in conjunction with the elongated aperture defined by said support; and

pin structure extendable through the holes in the tooth and through the elongated aperture in said support to releasably hold the tooth to the support.

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Please amend Claim 31 as follows:

29 31. (Twice Amended) An assembly for attaching a ground engaging tooth to a ground engaging implement comprising:

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a support attachable at a rear end to the implement and having a nose extending forwardly to a free terminal end, said nose having laterally spaced and opposed sides and upper and lower surfaces converging toward the terminal end of said support, with the nose of said support further defining an opening extending through the nose of the support toward the rear end thereof and which is open at opposite ends, said opening defining a generally vertical axis, said upper and lower surfaces on said support each defining a pair of fore-and-aft spaced stabilizing supports [support surfaces], with each stabilizing support [surface] having a lateral width less than the spacing between said opposed sides of said support and opening to the terminal end of said support, each stabilizing support [surface] including a generally horizontal stabilizing surface with a generally vertical wall extending in at least partially surrounding [and normal] relation relative to [and] said vertical axis between the [support] respective generally horizontal stabilizing surface and the respective upper and lower surfaces of the support;

said tooth defining a blind cavity configured to snugly fit endwise about the nose of the support and including upper and lower surfaces that complement the upper and lower surfaces on the nose of the support, with the upper and lower surfaces of the blind cavity each including first and second structures for abutting and cooperating with the pairs of [support surfaces] stabilizing

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supports on the upper and lower surfaces of the support, with each structure including generally vertical wall structure which, when said support and tooth are arranged in operable relationship relative to each other, abuts with the [stabilizing surface of each support surface] generally vertical wall on [the] a respective stabilizing support [being adapted to abut in mating relationship with said structures on the tooth] to facilitate transfer of side loads imparted to the tooth toward a center of the support, said tooth further defining a pair of holes arranged in axially aligned relation relative to each other and along a centerline passing through the blind cavity in the tooth to act in conjunction with the opening in the support; and

pin structure extendable through the holes in the tooth and the opening in said support for releasably attaching said tooth [to] and said support in operable relationship relative to each other.

Please amend Claim 32 as follows:

30 ~~32~~ (Amended) An assembly for attaching a ground engaging tooth to a ground engaging implement, comprising:

a support attachable at a rear end to the implement and having a nose extending forwardly to a free terminal end with a forwardly projecting curvilinear configuration, said nose having laterally spaced and opposed sides and upper and lower surfaces converging toward the terminal end of said support, said support further defining an opening extending through the support toward a rear end of the nose of the support and which is open at opposite ends, said opening

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defining a generally vertical axis, with said upper and lower surfaces each defining first and second fore-and-aft spaced and vertically aligned pairs of stabilizing supports [support surfaces], with each stabilizing support [surface] having a lateral width less than the spacing between said opposed sides of said support, with the first pair of [support surfaces] stabilizing supports on the upper and lower surfaces of the support extending rearwardly from and opening to the terminal end of the support and with the second pair of [support surfaces] stabilizing supports on the upper and lower surfaces of the support being disposed toward a rear end of the nose of the support, each stabilizing support [surface] on said support including a [stabilizing] generally flat and horizontal surface with a generally vertical wall extending at least partially [in surrounding and normal relation relative to and] to opposite lateral sides of the vertical axis between the horizontal [support] surfaces and a respective upper and lower [surfaces] surface of the support;

said tooth defining a blind cavity configured to snugly fit endwise about the nose of the support and including upper and lower surfaces that complement the upper and lower surfaces on the nose of the support, wherein the blind cavity of the tooth defines a curvilinear surface that is a mirror image of the curvilinear configuration at the terminal end of the support such that the tooth is subject to self-centering in response to horizontal loads being applied thereto, and with the upper and lower surfaces of the blind cavity each including first and second pairs of structures for abutting and cooperating with the first and second pairs of [support surfaces] stabilizing supports on the upper and lower surfaces of the support, and wherein [the] each [stabilizing surface of each

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support surface] pair of structures on the [support] tooth defines a generally vertical wall which,
when the support and tooth are arranged in operable relationship relative to each other, abut with
the vertical wall of a complementary stabilizing support on said support [being adapted to abut in
mating relationship with the structures on the tooth] to transfer side loads imparted to the tooth
toward a center of the support, said tooth further defining a pair of axially aligned holes opening
to the blind cavity in the tooth and arranged in conjunction with the opening defined by said
support; and

pin structure extendable through the holes in the tooth and the opening in said support for
releasably attaching said tooth [to] and said support in operable relationship relative to each other.

Please amend Claim 64 as follows:

1264. (Amended) An excavating tooth for a ground engaging implement comprising:

an elongated wedge shaped member defining a longitudinal axis and having a forward end
extending generally transverse to the longitudinal axis and a blind cavity opening to a rear end of
said member, said wedge shaped member defining a pair of axially aligned holes disposed along
[an] a vertical axis which passes through said blind cavity, and wherein said blind cavity includes
laterally spaced side surfaces with upper and lower tapered surfaces converging toward a forward
end of said cavity, with each tapered surface having a rearwardly disposed substantially horizontal
transmitting section [defined by] including a relatively flat generally horizontal stabilizing surface


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defined by a recess in the tapered surfaces of the blind cavity and through which one of said holes defined by said tooth extends, with each stabilizing surface having a lateral width less than the lateral spacing between said side surfaces of said cavity, and wherein each transmitting section further includes a generally vertical wall disposed at least partially to opposite lateral sides of said vertical axis and extending at least partially in a fore-and-aft direction between said flat generally horizontal stabilizing surface and a respective tapered surface on said elongated wedge shaped member.

13  Please amend Claim 65 as follows:

13 ~~65~~. (Amended) The excavating tooth according to Claim ~~64~~ *13* wherein each rearwardly disposed horizontal transmitting section on said member opens to a forward end of said cavity, and [further includes a] wherein said generally vertical wall of each horizontal transmitting section diverges [diverging] at least partially from a plane normal to the longitudinal axis of said member [between a support surface extending generally parallel to the longitudinal axis of said member and a respective tapered surface defined by said cavity].

 Please amend Claim 71 as follows:

89 ~~71~~ *19* (Amended) An adapter for an excavating implement, comprising:

an axially elongated member having a nose portion defining a longitudinal axis and a pair

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of outer tapered surfaces converging toward a forward end of the nose portion of said member,
with the nose portion of said member further including laterally spaced sides extending between
said outer tapered surfaces, and wherein said nose portion of said elongated member further
includes a bore disposed toward a rear end of said nose portion and defining a generally vertical
axis, with each tapered surface on said nose portion having a rearwardly disposed substantially
horizontal land section [defined by] including a relatively flat generally horizontal stabilizing
surface extending normal to and intersecting with said vertical axis and which is defined by a
projection extending from a respective tapered outer surface on the nose portion of said member,
with the flat generally horizontal stabilizing surface of each horizontal land section having a lateral
width less than the spacing between the sides of the nose portion of said member, [said member
further having a bore defining an axis extending generally normal to and intersecting with the
horizontal land sections on said member] and wherein each horizontal land section on the nose
portion of said member further includes a generally vertical wall disposed at least partially to
opposite sides of said vertical axis and extending at least partially in a fore-and-aft direction
between said flat generally horizontal stabilizing surface and a respective tapered surface on the
nose portion of said member.

☐ Please amend Claim 73 as follows:

73. (Amended) The adapter according to Claim 19 wherein each rearwardly disposed

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P10 substantially horizontal land section on the nose portion of said member opens to a forward end of said member, and [further includes a] wherein said generally vertical wall of each horizontal land section [diverging] diverges at least partially from a plane normal to the longitudinal axis of said member [between a support surface extending generally parallel to the longitudinal axis of said member and a respective outer tapered surface defined by said member].

REMARKS

Responding to the May 21, 1999 Final Office Action, the specification, and Claims 1, 9, 14, 15, 23, 26, 28, 29, 30, 31, 32, 64, 65, 71 and 73 have been amended while Claims 3, 10 and 16 have been canceled. No new matter has been added by the present response. No additional filing fee is required. For those reasons discussed in further detail below, and within the time limit set in the May 21, 1999 Office Action, Applicant respectfully requests reconsideration of the PETITION AND FEE TO CORRECT ORIGINALLY NAMED INVENTORS (37 CFR §1.48(a)) originally presented along with Applicants' March 2, 1999 Amendment "A". Also attached and forming an integral part of the present response is a LETTER TO THE OFFICIAL DRAFTSPERSON requesting certain amendments to the drawings. Reconsideration of this patent application is respectfully requested.

The amendments presented to the claims by the present response were not earlier proffered because Applicant verily believed the amended Claims included with Applicants

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